EA Appendix III

404(b) (1) Evaluation

CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

BALTIMORE HARBOR AND CHANNELS PROJECT, MARYLAND AND VIRGINIA
PROPOSED STRAIGHTENING OF THE TOLCHESTER CHANNEL S-TURN,
KENT COUNTY, MARYLAND

WITH PROPOSED PLACEMENT OF DREDGED SEDIMENTS
AT THE POPLAR ISLAND ENVIRONMENTAL RETORATION PROJECT,
TALBOT COUNTY, MARYLAND, OR THE HART-MILLER
ISLAND CONTAINMENT FACILITY, BALTIMORE COUNTY, MARYLAND

March 2001

I. PROJECT DESCRIPTION

a. Location - Tolchester Channel S-Turn, Chesapeake Bay, Kent County, Maryland, Poplar Island Environmental Restoration Project, Talbot County, Maryland, and Hart-Miller Island Containment Facility, Baltimore County, Maryland.

b. General Description - The proposed project consists of dredging approximately 3,000,000 cubic yards (cy) of sediment to construct a new straight channel to replace the existing Tolchester Channel S-Turn. The existing Tolchester Channel is maintained at a depth of -35 feet MLLW and width of 600 feet with additional widening of the turns. The Baltimore District dredges the channel an additional 2 feet (advance maintenance dredging) to preclude shoaling between maintenance dredging cycles from reducing operational channel depths to less than -35 feet MLLW. Dredging contractors are also allowed but are not required to dredge an additional 2-feet of overdepth dredging to ensure that required channel dimensions are achieved. The proposed channel straightening will be constructed and maintained to the same dredging dimensions, which will alter the current depths (-23 to -28 feet). Maintenance dredging occurs approximately every other year, when approximately 300,000 cy of material is dredged and discharged. The new channel segment will be cut to the west of the existing channel and some sections of the new S-Turn will be 1/2 mile further from shore than the existing channel.

c. Purpose - The purpose of the proposed project is to increase safety and efficiency (because the new channel is shorter) of the Port of Baltimore by improving (straightening) the Tolchester Channel S-Turn.

d. General Description of Dredged Material - Sediments proposed for dredging are generally soft highly plastic, silty clay with occasional shell fragments, sand, gravel, cobbles, and wood pieces.

e. Description of the Proposed Discharge Sites - Dredged sediments resulting from the proposed improvements will be placed at the Poplar Island Environmental Restoration Project or the Hart-Miller Island Dredged Material Containment Facility. Poplar Island is the preferred alternative. Dredged sediments generated from periodic maintenance dredging of the channel after straightening will be placed in either of these sites or other approved sites. This 404(b)(1) evaluation is only applicable to the proposed placement of dredged material at the Poplar Island site or Hart-Miller Island Containment Facility. Maintenance dredging of the Tolchester Channel, with placement of dredged material at the Poplar Island Restoration Project or HMI, has been evaluated in conjunction with the Final Integrated Feasibility Report and Environmental Impact Statement for the Poplar Island Environmental Restoration Project and the Final Environmental Impact Statement for the Hart Miller Island Diked Disposal Area and has been found in compliance with the Section 404 Guidelines. Consideration of other placement alternatives in the future would necessitate another 404(b)(1) evaluation specific to the proposed action.

Phase I of the Poplar Island Environmental Restoration Project is currently a multiple-cell, 640-acre island in the Chesapeake Bay south of the Bay Bridge in Talbot County. Construction of the First Phase is complete, providing up to 23 mcy of capacity, which is currently available. The construction for the second Phase (500 acres) is ongoing and will provide and additional 17 mcy. Both Phases will be diked to +8 MLLW in the wetland cells and +22 feet in the upland cells.

The Hart-Miller Island Containment Facility is a two-cell, 1,140-acre island in the Chesapeake Bay near the mouth of the Back River, Baltimore County, Maryland. The South Cell has been closed to placement of dredged material since October 1990 and is being developed as a wildlife habitat area. The North Cell, approximately 800 acres, is circumscribed by dikes that have been raised to +44 feet mean lower low water (MLW). The site has a remaining dredged material capacity of approximately 18 million cubic yards as of Fall 2000.

f. Description of Discharge Method - While the contractor is not limited to a specific dredge type, it is expected that the proposed dredged material will be dredged by clamshell dredge and placed in barges; the filled barges will be pushed to the proposed placement site by tugs where the sediments will be pumped into the containment cell. The material could also be dredged by a hydraulic cutterhead pipeline dredge, which would pump the material directly from the channel, through a pipeline, into the containment facility or dredged by a hopper dredge and hauled to the placement area and pumped out. Because of the distance to the placement areas, the use of hydraulic dredge or hopper dredge is unlikely. The dredged material will be allowed to settle and

consolidate in the placement site. Supernatant water will be returned to the Chesapeake Bay through weirs or similar control structures.

II. FACTUAL DETERMINATIONS

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope - The substrates within Poplar Island are the existing silt-sands that were contained when the sand dike was constructed and fine-grained silts and clays that were placed in the site as part of construction. The site is underlain by clays of varying organic content. The soils at the Hart-Miller Island Containment Facility consist of multiple layers of dredged material, primarily silts and clays ranging from low to high moisture content. The dredged material layer is underlain by tan-white to red-white clays or a clay and silt matrix representative of native materials. The material is from a variety of dredging projects in the Chesapeake Bay, Baltimore Harbor, and Baltimore County. The elevations and slopes of the areas surrounding the placement sites are not expected to change. Both sites are contained and the elevations inside the sites will increase. The slopes of the placed material are/will be managed to optimize placement capacity.

(2) Sediment Type - Sediments proposed for discharge are generally soft, highly plastic, silty clay with occasional shell fragments, sand, gravel, cobbles, and wood pieces.

(3) Discharged Material Movement - The discharged material will be placed within containment dikes at either Poplar Island or Hart Miller Island. The spillways and weirs will be managed to minimize movement of dredged material solids beyond the containment dikes.

(4) Physical Effects on Benthos - Benthos within the placement site, if present, will be covered with dredged material. No significant impacts to benthos are expected outside of the placement sites because discharges will meet discharge criteria and monitoring of the HMI site over the past 16 years has indicated no impacts from the operation of the site. Poplar Island operations are not expected to significantly impact surrounding benthos.

(5) Other Effects - None

(6) Actions Taken to Minimize Impacts – The overflow of scows will be prohibited. Dredged material will be contained behind the aforesaid dikes. Discharges will be monitored.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water - Supernatant water released from the placement sites may have slightly elevated turbidity but would meet the limits set forth in the state water quality certification or discharge permit and monitored to ensure compliance.

(a) Salinity - No change is expected because sediments would be of similar salinity to those surrounding both placement areas and dilution water needed to slurry the sediment prior to discharge would come from the waters adjacent to the site. There would be no change in the hydrodynamics surrounding the sites.

(b) Chemistry - Minor and temporary changes in nutrient, pH, and some metal concentrations are possible in the immediate vicinity of the placement site spillways during dewatering operations.

(c) Clarity - Minor and temporary changes are expected in the immediate vicinity of the placement site spillways due to elevated turbidity.

(d) Color - Minor and temporary changes are possible in the immediate vicinity of the placement site spillways during dewatering operations due to turbidity releases.

(e) Odor- Minor and temporary changes are possible in the immediate vicinity of the unloading and placement operations at the placement site due to suspension of anoxic muds.

(f) Taste - N/A.

(g) Dissolved Gas Levels - Temporary changes (increase and/or decrease of dissolved oxygen) may occur in the immediate vicinity of the placement site spillways during dewatering operations due to the water quality of the water ponded within the site.

(h) Nutrients - A slight and temporary increase in nutrients may occur adjacent to the placement site spillways during dewatering operations due to agitation of sediments.

(i) Eutrophication - Not expected to occur because nutrient releases will be short-lived and will dissipate quickly.

(j) Others as Appropriate - None.

(2) Current Patterns and Circulation - Only limited and localized effects are anticipated.

(a) Current Patterns and Flow - Minor, short-term, localized alterations in flow and currents are expect adjacent to the outfalls of the placement sites during dewatering activities. There will be no effect on regional current or flow patterns.

(b) Velocity - No change in tidal velocities is anticipated.

(c) Stratification - No change is expected because the areas adjacent to both placement sites are shallow (<10 feet at Poplar, <20 feet at HMI).

(d) Hydrologic Regime - No changes are expected.

(e) Alteration to Bottom Contours - No changes are expected.

(3) Normal Water Level Fluctuations - No change is expected.

(4) Salinity Gradients - No change is expected.

(5) Actions to Minimize Impacts - Material will be placed in a contained site and spillways will be monitored to conform with surface water criteria.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Project Sites - Minor and temporary increase of suspended particulates and turbidity are expected in the immediate vicinity of the placement site discharges during dewatering activities.

(2) Effects on Chemical and Physical Properties of the Water Column - Minor and temporary changes are expected in the immediate vicinity of the placement site spillways during dewatering operations.

(a) Light penetration - A minor, temporary decrease is anticipated in the immediate vicinity of the placement site spillways immediately following dewatering operations.

(b) Dissolved Oxygen - Temporary changes (increase and/or decrease of dissolved oxygen) may occur in the immediate vicinity of the placement site spillways during dewatering operations due to the water quality of the water ponded within the site.

(c) Toxic Metals and Organics - A minor, temporary increase in the amount of metals or nutrients in the immediate vicinity of the placement site spillways is

possible due to dewatering activities. Levels will comply with surface water criteria set forth in the state water quality certification or discharge permit.

(d) Pathogens - No change is expected.

(e) Aesthetics - Minor and temporary increases in turbidity in the vicinity of the placement site spillways during dewatering operations.

(f) Others as Appropriate - N/A.

(3) Actions to Minimize- Material will be placed in a contained site and spillways will be monitored to conform with State of Maryland water quality certifications or discharge permits.

d. Contaminant Determinations

Sediments proposed for discharge and elutriates of placement site water and dredged material were tested to measure concentrations of priority pollutants and potential impacts if the material were to be placed hydraulically in an open water placement area (pursuant to the US EPA/USACE Inland Testing Manual). However, the material will be placed in a confined site rather than in open water. The elutriate results, therefore, overstate any potential release of contaminants into the water column. Results indicate that most priority pollutants are either not present in the proposed dredged material or are present in concentrations lower than prescribed method detection limits. Most metals, all PAH's, and 3 chlorinated pesticides were detected in the sediments. Overall, the majority of the detected contaminants were detected at low concentrations or at concentrations that are below the USEPA/USACE recommended detection limits. Because the material is being contained in placement sites and the spillways are being managed, the release of significant contaminants is unlikely.

An extracted summary of results of chemical analysis is presented in Appendix V of the EA.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton - Toxicity testing conducted in conjunction with the project indicated a very low potential for toxicity to planktonic forms. Plankton in the immediate vicinity of the placement sites may be entrained in water from the spillway during discharge. These potential effects are expected to be temporary and are not considered significant.

(2) Effects on Benthos - Benthos within the Hart Miller Island Containment Facility have already been smothered and benthos within the Poplar Island Environmental Restoration

Project will be smothered with sediments. Effect is not expected to be significant. No effects on benthic organisms have been measured in the 16 years of operations at HMI. Poplar Island discharges are not expected to have any significant ecological effects.

(3) Effects on Nekton - Nekton in the immediate vicinity of the placement sites may be displaced or entrained during dewatering operations. Effects are expected to be temporary and insignificant.

(4) Effects on Aquatic Food Web - No significant effects are expected. Temporary effects may occur in a localized area due to elevated turbidity immediately after dewatering. Significant impacts have never been detected in the vicinity of HMI and are not anticipated for Poplar Island.

(5) Effects on Special Aquatic Sites - The proposed placement of dredged material at the Poplar Island Environmental Restoration Site or Hart Miller Island will not impact special aquatic sites.

(6) Threatened and Endangered Species - No Shortnose sturgeon (SNS) have been caught near Poplar Island but fishermen have reported captures in the vicinity of HMI. Consultations for the potential of this or other dredging projects to affect the endangered shortnose sturgeon (SNS) are ongoing. A bald eagle nest is located on Coaches Island, adjacent to the Poplar Island site and has been nesting there during construction so placement activities are not expected to affect the birds. The Corps continues to comply with the U.S. F&WS recommendations for protected the bald eagle and its nesting sites. No impacts are anticipated on threatened and endangered species.

(7) Other Wildlife - Impacts to wildlife at Poplar Island or Hart-Miler Island are not significant during placement. When filled to the final elevation, Poplar Island will be developed as a wildlife habitat area. Some temporary displacement of wildlife will occur at both Poplar and HMI during filling activities.

(8) Actions to Minimize Impacts - The dredged material placed at Poplar Island or Hart-Miller Island will be confined to the diked area.

f. Proposed Placement Site Determinations

(1) Mixing Zone Determinations - NA

(2) Determination of Compliance with Applicable Water Quality Standards - The proposed work will be performed in accordance with all applicable State of Maryland water quality standards.

(3) Potential Effects on Human Use Characteristics

(a) Municipal and Private Water Supply - No effects are expected from placement of dredged material at Poplar Island or Hart-Miller Island. Monitoring of shallow wells at the existing HMI facility since 1986 have indicated that little acidification of groundwater is occurring and most trace metals are not mobilized.

(b) Recreational and Commercial Fisheries - No significant impacts to commercial or recreational fisheries have been measured during 16 years of operations at HMI and none are anticipated for Poplar Island. Occasional conflicts occur between dredging contractors and commercial watermen and fishing gear is occasionally damaged. When Poplar Island is restored it is expected to have a net benefit on this resource.

(c) Water Related Recreation - Water related recreation occurs adjacent to HMI and Poplar Island and will be temporarily interrupted in the vicinity of placement operations. Activities will resume adjacent to Poplar Island once placement activities have ceased. No significant impacts are anticipated.

(d) Aesthetics - Minor local and temporary effects are possible from tug, barges, and unloading but are part of the normal operations of both placement sites.

(e) Parks, National and Historical Monuments, National Seashore, Wilderness Areas, Research Sites, and Similar Preserves - No effect expected.

g. Determination of Cumulative Effects on the Aquatic Ecosystem - No permanent, long term, cumulative adverse effects to the existing aquatic ecosystem are expected as a result of the proposed discharge. Cumulative releases of nitrogen are expected from other dredging projects during the dredging season. Some stimulation of algal growth is possible from the added nutrient load after dewatering, but will be temporary and localized. After filling, the Poplar Island and HMI sites will be developed as wetlands, forested areas, or other ecological habitat.

h. Determination of Secondary Effects on the Aquatic Ecosystem - No secondary effects are expected.

III. FINDING OF COMPLIANCE

No adaptations of the Section 404(b)(1) Guidelines were made relative to this evaluation.

The use of the proposed placement site(s) is not contrary to other state and Federal laws for the protection of water quality, aquatic species, or habitat; as follows:

(1) The proposed discharge of dredged material will be in compliance with State water quality standards.

(2) The proposed discharge of dredged material is not expected to violate the Toxic Effluent Standard of Section 307 of the Clean Water Act.

(3) The proposed discharge of dredged material will not negatively affect any threatened or endangered species.

(4) No Marine Sanctuaries, as designated in the Marine Protection, Research, and Sanctuaries Act of 1972, are in the project area.

(5) The proposed discharge will not result in significant adverse effects on human health or welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, wildlife, special aquatic sites, life stages of aquatic life, and other wildlife.

Thus, the proposed placement (discharge) of dredged material at either the Poplar Island Environmental Restoration Project or the Hart-Miller Island Dredged Material Containment Facility pass the requirements test of 40 CFR 230.10(b).

Parts I and II of the analysis (preceding) show that utilization of the proposed placement sites will not contribute to the degradation of waters of the United States; and therefore, the proposed discharge complies with the requirements of 40 CFR 230.10(c).

Appropriate steps to minimize potential impacts of the placement of the material in aquatic systems will be followed in accordance with the conditions of the Maryland Department of the Environment Water Quality Certification or discharge permit.

The mandatory sequence of the Section 404(b)(1) Guidelines has been applied in evaluation of the proposed action. The proposed placement of the dredged material at Poplar Island Environmental Restoration Project or the Hart-Miller Island Containment Facility is in compliance with the Section 404(b)(1) Guidelines.